



An Energy Efficiency Workshop & Exposition
Palm Springs, California



***Turn off all cell phones
and
Set pagers to vibrate***



An Energy Efficiency Workshop & Exposition
Palm Springs, California

***Naval Air Station Lemoore
Utility Energy Service Contract
Project Case Study***



**Project Financing Track
Session 4
June 3, 2002**



Home of the FA-18 Super Hornet



June 2 -5, 2002

www.energy2002.ee.doe.gov

3



Introduction

- Edward Thibodo, Contracting Officer
 - Naval Facilities Engineering Command
- Earl Plummer, Government Accounts
 - Southern California Gas Company
- LT A. J. Catalanotte, Public Works
 - Naval Air Station Lemoore

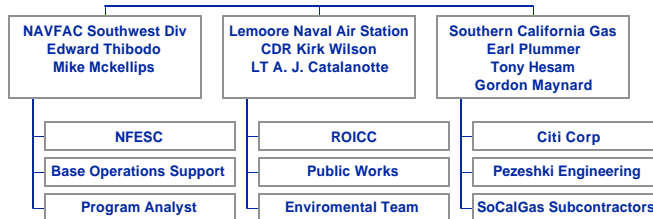
June 2 -5, 2002

www.energy2002.ee.doe.gov

4



Energy Project Team A Partnership



June 2 -5, 2002

www.energy2002.ee.doe.gov

5



FA-18 Over NAS Lemoore



June 2 -5, 2002

www.energy2002.ee.doe.gov

6



Technologies Under Contract

- HVAC
- Lighting
- Irrigation
- DDC/EMS
- Pool Covers



June 2 -5, 2002

www.energy2002.ee.doe.gov

7



Procurement Environment

- California Energy Crisis
- Office Secretary of Defense Funds
- 5 Months from Concept to Award
 - May 2001 "Preliminary" No Cost Survey
 - June 2001 OSD Funds Become Available
 - July 2001 Final Survey; Scope Developed
 - August 2001 RFP Issued
 - September 2001 Contract Awarded

June 2 -5, 2002

www.energy2002.ee.doe.gov

8



Type of Contract

- Utility Energy Service Contract (UESC)
- SoCalGas GSA Area Wide Contract
- Firm Fixed Price
- Funded With Two Types of Funds
- Remaining Balance Financed

June 2 -5, 2002

www.energy2002.ee.doe.gov

9



Funding Sources

- Office Secretary of Defense Funds
 - \$ 247,270
- DoD Buy Down Funds (Geothermal)
 - \$ 293,000
- Third Party Financed Funds
 - \$ 4,010,720

June 2 -5, 2002

www.energy2002.ee.doe.gov

10



Hornet Heading Home



June 2 -5, 2002

www.energy2002.ee.doe.gov

11



Contract Pricing Details

- Contract Price
 - \$ 4,550,910
- Contract Savings Per Year
 - \$ 684,836
- Simple Payback 6.65 Years
- Financed Payback 119 Months
- Interest Rate 7.06%

June 2 -5, 2002

www.energy2002.ee.doe.gov

12



Buy Down Funds

- Buy Down Funds
 - Funds Prior to Award
 - Partially Fund Contract
 - Funds After Award
 - Utility carries the cost (insert payment stream with no pre-payment penalty).
 - Priced Option for additional work to be added when funds are received.

June 2 -5, 2002

www.energy2002.ee.doe.gov

13



Financing

- Third Party Financing
 - Government & Utility Decision
- Project Savings Pays the Loan
 - Determine Confidence in Savings
 - How good is your estimate?
 - 70% to 90% Appropriate
 - Utilized 90% for this project

June 2 -5, 2002

www.energy2002.ee.doe.gov

14



Technical Presentation



June 2 -5, 2002

www.energy2002.ee.doe.gov

15



Project Overview

- Overall Project: HVAC, lighting, irrigation, EMS, solar pool covers
 - Investment
 - \$4,550,910
 - Annual Savings: Energy, Water, O&M
 - 3.5 GWh; 144,500 therms; 98 million gallons; \$684,836
 - Payback
 - 6.65 years (not including financing)

June 2 -5, 2002

www.energy2002.ee.doe.gov

16



Heating/Ventilation and Air Conditioning

- HVAC: 11 boilers and 13 chillers...
with pumps and air handlers
 - Investment
 - \$1,897,886
 - Annual Energy Savings
 - 1.6 GWh; 76,000 therms; \$153,924
 - Payback
 - 12.33 years

June 2 -5, 2002

www.energy2002.ee.doe.gov

17



Heating/Ventilation and Air Conditioning

Chiller Before



June 2 -5, 2002

www.energy2002.ee.doe.gov

18



Heating/Ventilation and Air Conditioning

After



June 2 -5, 2002

www.energy2002.ee.doe.gov

19



Heating/Ventilation and Air Conditioning

Before



June 2 -5, 2002

www.energy2002.ee.doe.gov

20



Heating/Ventilation and Air Conditioning

After



June 2 -5, 2002

www.energy2002.ee.doe.gov

21



Heating/Ventilation and Air Conditioning

Boiler Before



June 2 -5, 2002

www.energy2002.ee.doe.gov

22



Heating/Ventilation and Air Conditioning



June 2 -5, 2002

www.energy2002.ee.doe.gov

23



Lighting

- Lighting: 18 buildings, 4,800 fixtures
 - Investment
 - \$331,050
 - Annual Energy Savings
 - 220 kW; 1 million GWh; \$38,494
 - Payback
 - 8.60 years

June 2 -5, 2002

www.energy2002.ee.doe.gov

24



Lighting

Before



June 2 -5, 2002

www.energy2002.ee.doe.gov

25



Lighting

After



June 2 -5, 2002

www.energy2002.ee.doe.gov

26



Irrigation

- Irrigation: valves, controllers and sprinklers for 25-plus acres
 - Investment
 - \$886,864
 - Annual Energy Savings
 - 98 million gallons; \$180,993
 - Payback
 - 4.90 years

June 2 -5, 2002

www.energy2002.ee.doe.gov

27



Irrigation

Before



June 2 -5, 2002

www.energy2002.ee.doe.gov

28



Energy Management Systems

- EMS: 23 buildings, 1,900 points, central monitoring
 - Investment
 - \$1,301,404
 - Annual Energy Savings
 - 1 GWh; 14,000 therms; \$56,929
 - Provides Customer with real time information and control capability

June 2 -5, 2002

www.energy2002.ee.doe.gov

29



Energy Management Systems

Existing



June 2 -5, 2002

www.energy2002.ee.doe.gov

30



Solar Applications

- Solar Pool Covers: lap pool, survival pools
 - Investment
 - \$67,427
 - Annual Energy Savings
 - 55,000 therm; \$66,105
 - Payback
 - 1.02 years

June 2 -5, 2002

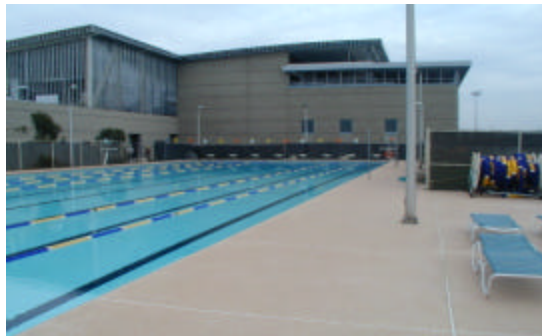
www.energy2002.ee.doe.gov

31



Solar Applications

Before



June 2 -5, 2002

www.energy2002.ee.doe.gov

32



Solar Applications

Before



June 2 -5, 2002

www.energy2002.ee.doe.gov

33



SoCalGas Lessons Learned

- There's nothing like cheap power!
- "Be quick, but don't hurry."
 - John Wooden
- Collaborate... early and often
- Information, "street smarts" and continuity
- Be there... and get dirty

June 2 -5, 2002

www.energy2002.ee.doe.gov

34



Customer Presentation



June 2 -5, 2002

www.energy2002.ee.doe.gov

35



The Customer Point of Contact

- Critical component of project team
- Typical expectations of a POC
 - Project development
 - Resident expert for facilities and tenants
 - Administrative project management
 - Technical representation
 - Contractual requirements
 - Customer relations
- Facilities manager is the best choice

June 2 -5, 2002

www.energy2002.ee.doe.gov

36



Making the Most of a UESC

- Take charge of your project
 - Planning
 - Be a player in the survey development
 - Quality is directly proportional to customer involvement
 - Survey Validation/Project Development
 - Make sure the savings proposed are realistic
 - You have the best knowledge of facilities
 - People, Function, Operating Hours, etc.
 - Ensure the assumptions make sense
 - Help to identify unique opportunities
 - No performance guarantee with UESC, survey validity is paramount to obtain best value for government.

June 2 -5, 2002

www.energy2002.ee.doe.gov

37



Project Execution

- Keep the tenants happy
 - Establish a working relationship
 - Introduce your project team and building managers
 - Remember that you are replacing working items
 - To the customer it can be an inconvenience
 - Take advantage of customer coordination as an opportunity to sell your conservation program
 - They want to know more than you think.
 - Plan for the weather to minimize tenant impacts

June 2 -5, 2002

www.energy2002.ee.doe.gov

38



Realizing Savings

- Quality survey and documentation
- Bundling – Get a piece of the “High fruit”
- Establish energy baseline for project
- Informal Measurement and Verification
 - Combined effort
 - Not required with UESC but recommended
 - Validates survey assumptions

June 2 -5, 2002

www.energy2002.ee.doe.gov

39



Project Strengths

- Capital investment
- Energy savings
- Quality of equipment
- Flexibility in design phase
- Bundled project
 - Individual paybacks from 1 to 22 years
 - Water, gas, electric, and O&M savings
- Project execution identified future ECOs

June 2 -5, 2002

www.energy2002.ee.doe.gov

40



No Free Lunch

- Never forget this is a business
 - Utility company makes money, the more you finance, the more they make.
 - Poor planning and project validation will cost you, the US Government, money.
 - Don't over extend your organization.
 - Shortfalls of financed projects create unplanned obligations during payment stream
 - Make sound business decisions.

June 2 -5, 2002

www.energy2002.ee.doe.gov

41



Closing Comments & Questions



June 2 -5, 2002

www.energy2002.ee.doe.gov

42



Closing Comments & Questions

- Closing Comments
 - Energy saved
 - Facility Improvements
- Questions
 - Ed Thibodo 619-532-4243 or ThibodoEd@efdswnavfac.navy.mil
 - Earl Plummer 562-803-7317 or eplummer@socalgas.com
 - A.J. Catalanotte 559-998-4097 or catalanotte.AJ@lemoore.navy.mil